2010 Annual Report

Water & Wastewater

City of Saskatoon

The purpose of the Water Utility is to provide water treatment, process control, equipment maintenance, and laboratory support services required to supply all consumers with safe and reliable high quality potable water at an acceptable pressure. The water intake and delivery system includes a remote raw water pumping facility and three reservoirs.

Aerial view of Water Treatment Plant and Meter Shop – Avenue H South

Aerial view of Wastewater Treatment Plant – Whiteswan Drive

The purpose of the Wastewater Utility is to provide for the operation and maintenance of the City's wastewater treatment plant and 26 remote pumping facilities, and the handling and disposal of solids resulting from the treatment process. The Wastewater Treatment Plant treats wastewater that is delivered to the Plant by an extensive network of pump stations and underground pipes, and returns high quality effluent back to the South Saskatchewan River.

The Water and Wastewater Treatment Plants are designated Level 4 facilities, the highest level of certification in Canada. The treatment of water and wastewater is regulated by rigid provincial and national standards outlined in the Permit to Operate by the Saskatchewan Ministry of Environment.

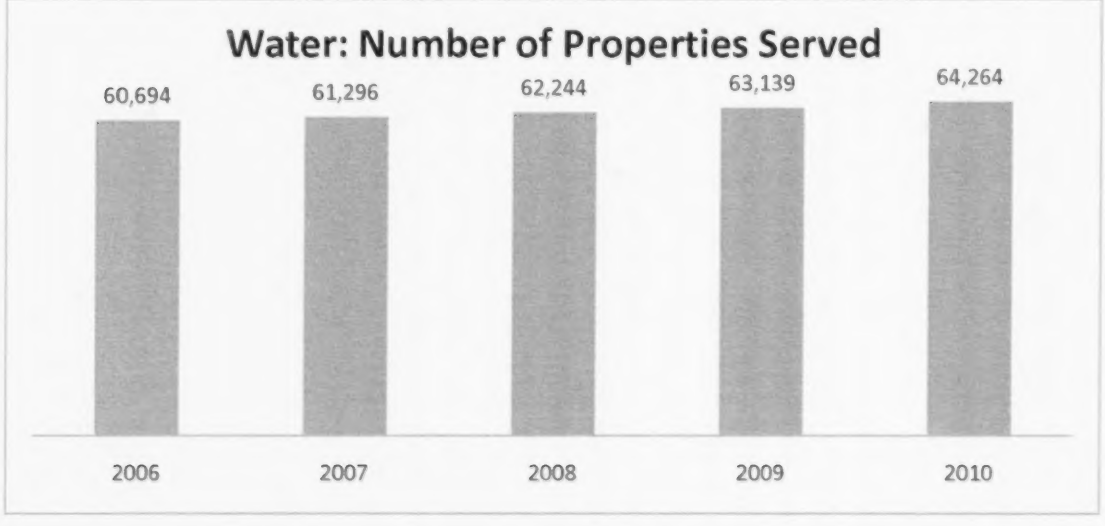
The Water Meter section is responsible for installing and replacing meters, metering accuracy, customer service concerns, and the managing and operation of the cross connection control program.

OUR CUSTOMER

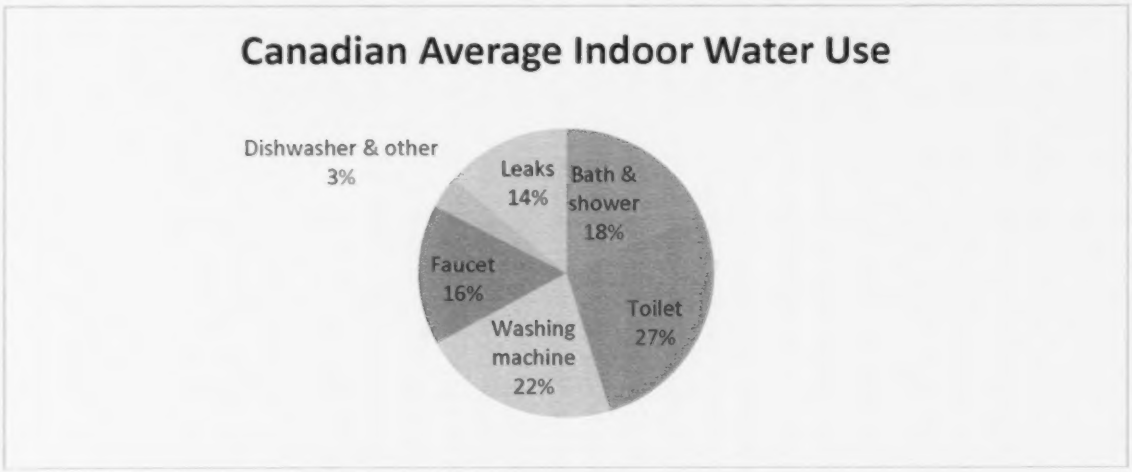
Customers Served

Customers include households, businesses, and institutions within the city, as well as SaskWater that purchases water to supply their customers outside of Saskatoon. Water is distributed to our customers by a distribution system maintained by the City's Infrastructure Services Department. Wastewater is collected by a sanitary sewage collection system maintained by the City's Infrastructure Services Department.

The number of water meters in service is an accurate representation of the number of properties served. The approximate number of properties served in 2010 was 64,264, consisting of 59,151 residential households and 5,112 multi-unit dwellings and commercial properties. Water treatment and distribution and wastewater collection and treatment are provided to all 224,900 citizens of Saskatoon.

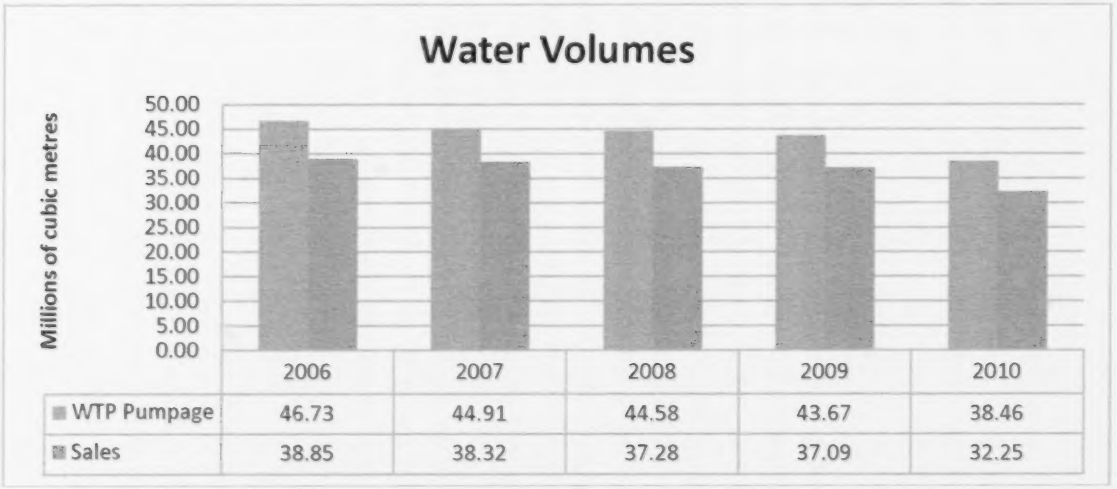


The following chart provides an indication of how water is consumed in Canadian homes.

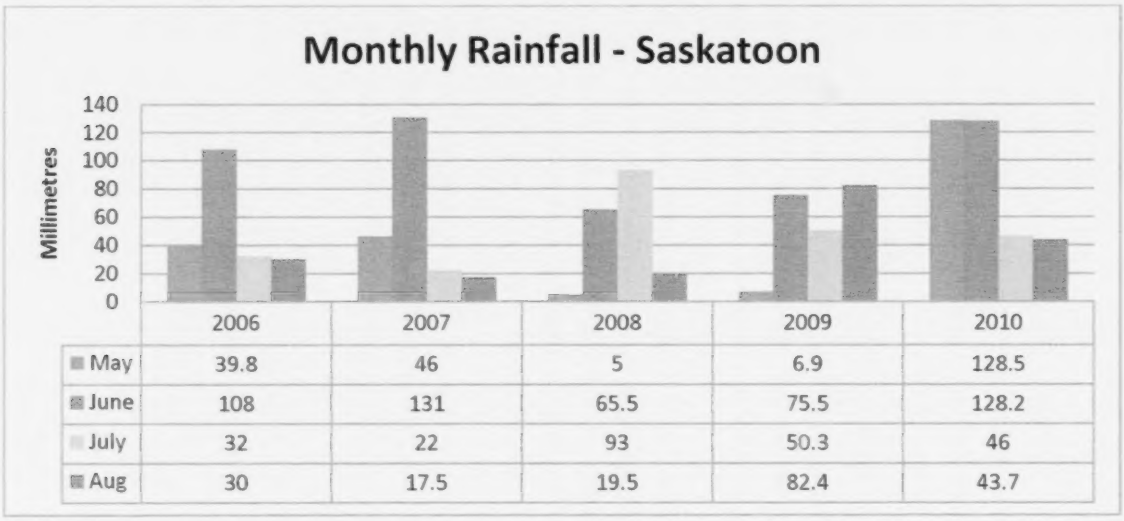


The volume of water sold was 32.25 million cubic metres in 2010. This is based on customer meters. This is an 11% drop in volume from the previous five-year average volume. The decline in water volumes is due to unusually high rainfall and cooler average temperatures last summer that resulted in a significant reduction in residential and commercial irrigation.

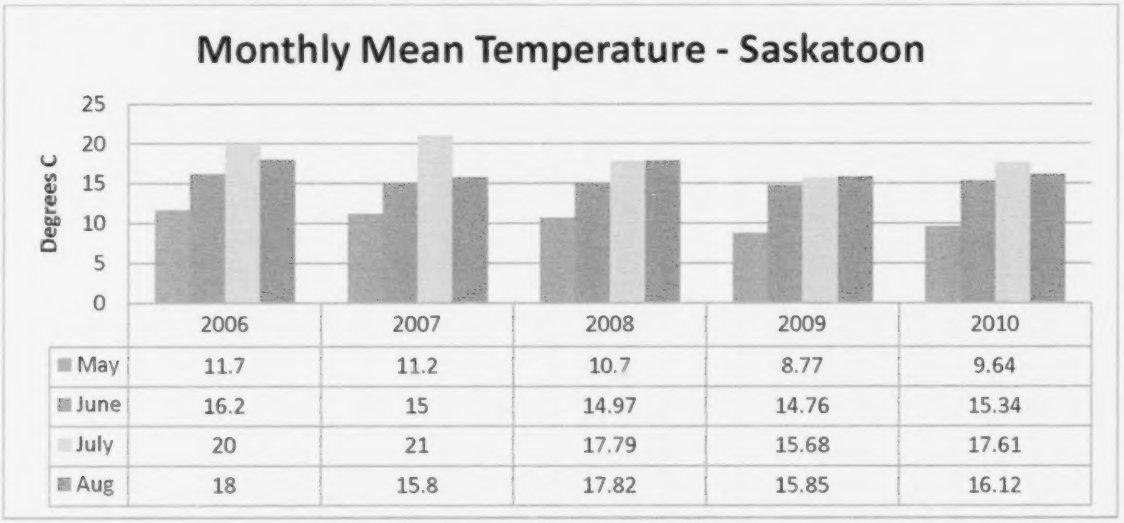
The following chart shows both water volume sales and water treatment pumpage. Water Treatment Plant (WTP) pumpage measures the volume of treated water pumped from the Water Treatment Plant into the distribution system. The difference in values is due to water loss.



	2006	2007	2008	2009	2010
WTP Pumpage	46.73	44.91	44.58	43.67	38.46
Sales	38.85	38.32	37.28	37.09	32.25

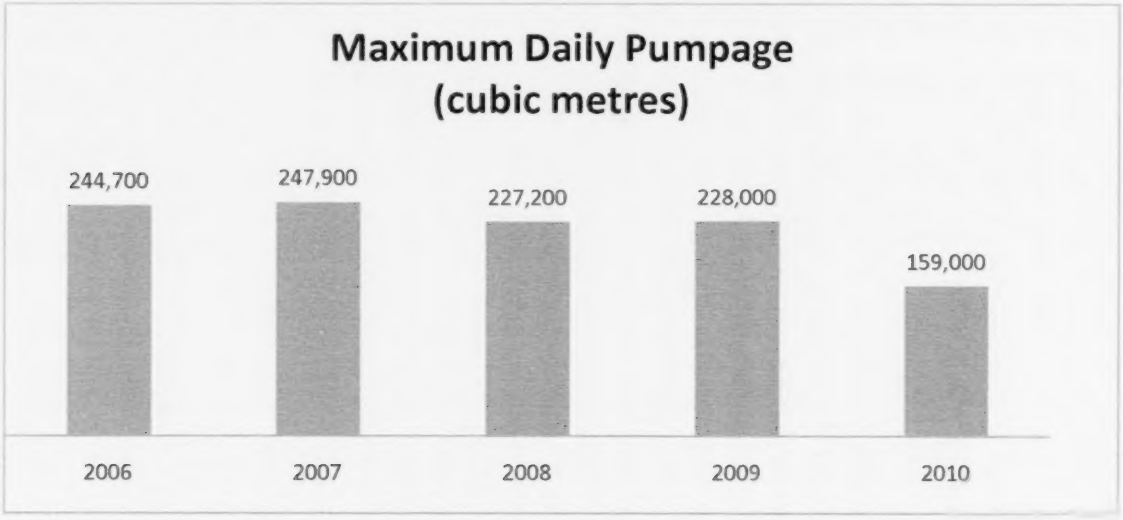


	2006	2007	2008	2009	2010
May	39.8	46	5	6.9	128.5
June	108	131	65.5	75.5	128.2
July	32	22	93	50.3	46
Aug	30	17.5	19.5	82.4	43.7

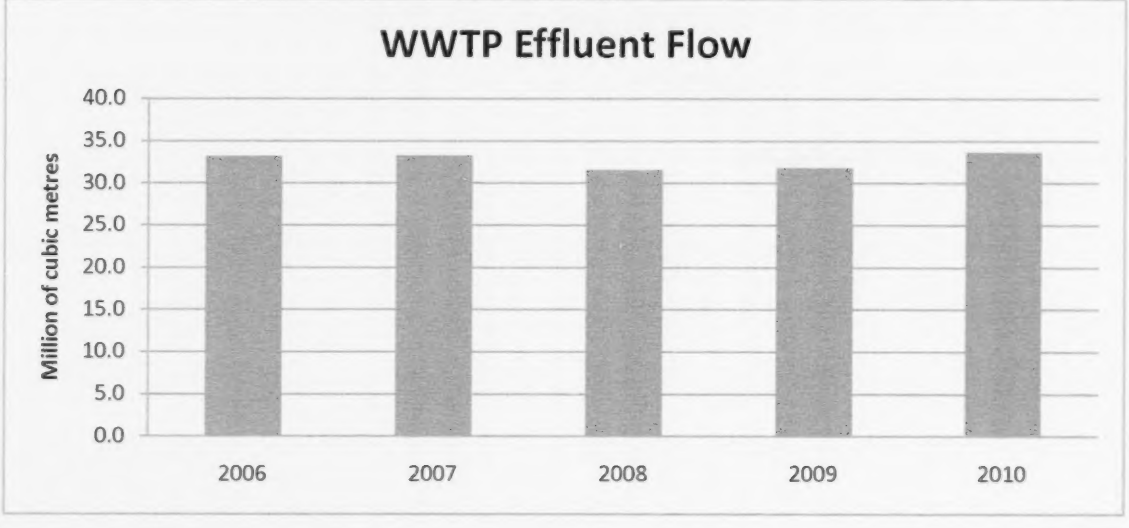


	2006	2007	2008	2009	2010
May	11.7	11.2	10.7	8.77	9.64
June	16.2	15	14.97	14.76	15.34
July	20	21	17.79	15.68	17.61
Aug	18	15.8	17.82	15.85	16.12

The maximum daily pumpage of 159,000 cubic metres occurred in May of 2010. The following chart shows that maximum daily pumpage is 30% (or 69,000 cubic metres) less than the 2009 maximum pumpage. This unusually low daily maximum is attributed to the lack of normal summer irrigation due to greater than normal rainfall.



Wastewater Treatment Plant (WWTP) flows increase in wet weather conditions due to system inflow (e.g. weeping tiles) and infiltration. As seen by the following chart, this was the case in 2010. One primary sedimentation basin was taken out of service to provide additional surcharge capacity during high flow events and emergencies. Using the empty basin to store excess flow reduced unintentional untreated wastewater discharge into the river.



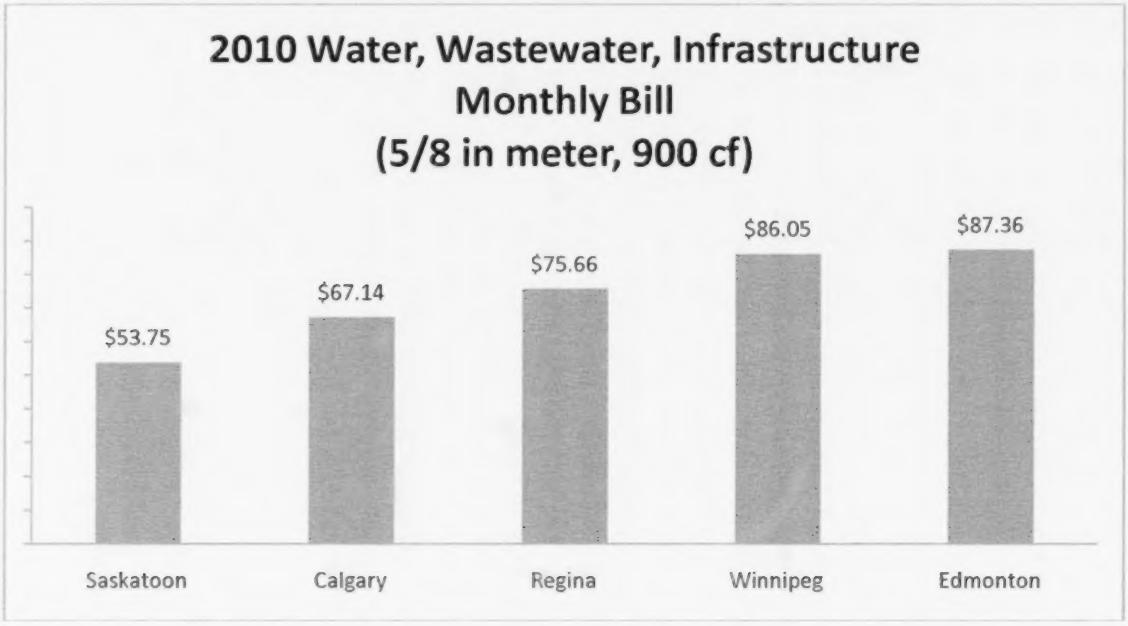
The Meter Shop provides for the purchase, installation, testing, repair and replacement of meters, and the initiation and termination of water services. In 2010, the meter shop undertook 1,380 new meter installations, changed 1,216 meters as part of routine end of life replacement, and made 10,654 service calls. Service calls result from a City Hall work order to check a meter because it is not recording, or if a cut-off/reconnect has been ordered. A second or third service trip is sometimes required when the customer is not home.

	2006	2007	2008	2009	2010
new installation	629	907	1,227	971	1,380
Change out	1,594	1,401	997	1,733	1,216
Service Calls	11,229	12,311	9,122	12,041	10,654

The Meter Shop is also responsible for the Cross Connection Control Program initiated in 2003. This program exists to ensure that proper backflow prevention devices are installed on institutional, commercial and industrial service connections and tested annually to protect the potable water in the distribution system from becoming contaminated by the process within these properties. Presently, there are 3,893 active backflow prevention devices. In 2010, 584 new devices were installed and 95.4% of all devices were tested which is up from 83.9% in 2009.

Competitive Rates

The following chart compares monthly water, wastewater, and infrastructure bills for residential customers. Saskatoon bills remain significantly less than other prairie cities. For example, Calgary bills are 25% more and Regina bills are 41% more than Saskatoon.



Customer Satisfaction

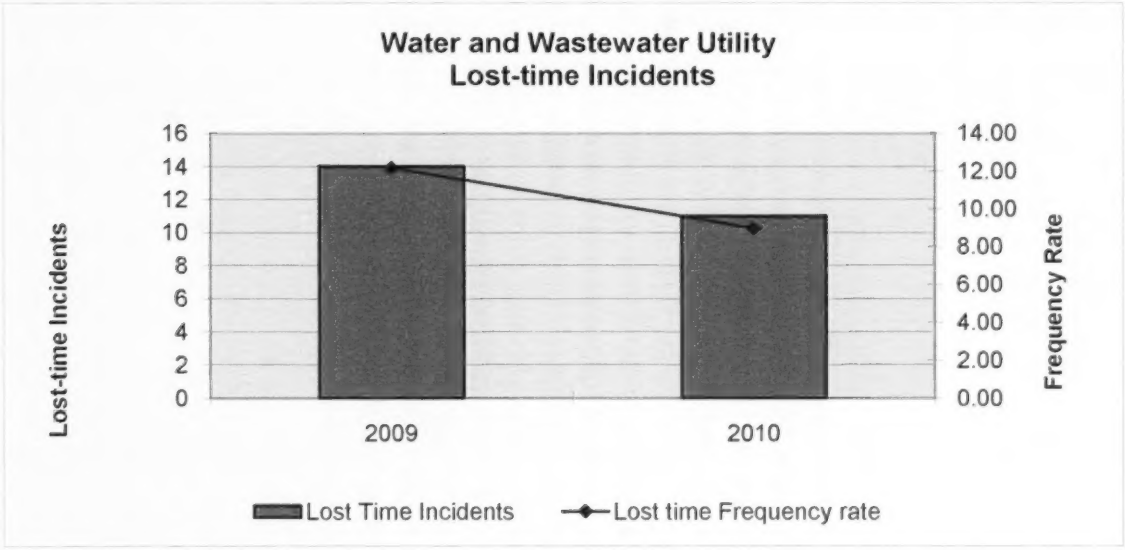
In the City of Saskatoon 2009 Civic Services Satisfaction Study, Saskatoon citizens ranked water treatment and wastewater treatment as the two most important civic services. A score of 10 means "excellent" and 5 means "average". In 2009, citizens indicated a satisfaction level of 8.49 for water quality and 7.68 for sewage treatment. Scores exceeding 7.5 are considered to be good. Water quality has consistently received the highest score and sewage treatment has consistently scored in the top four of all services provided.

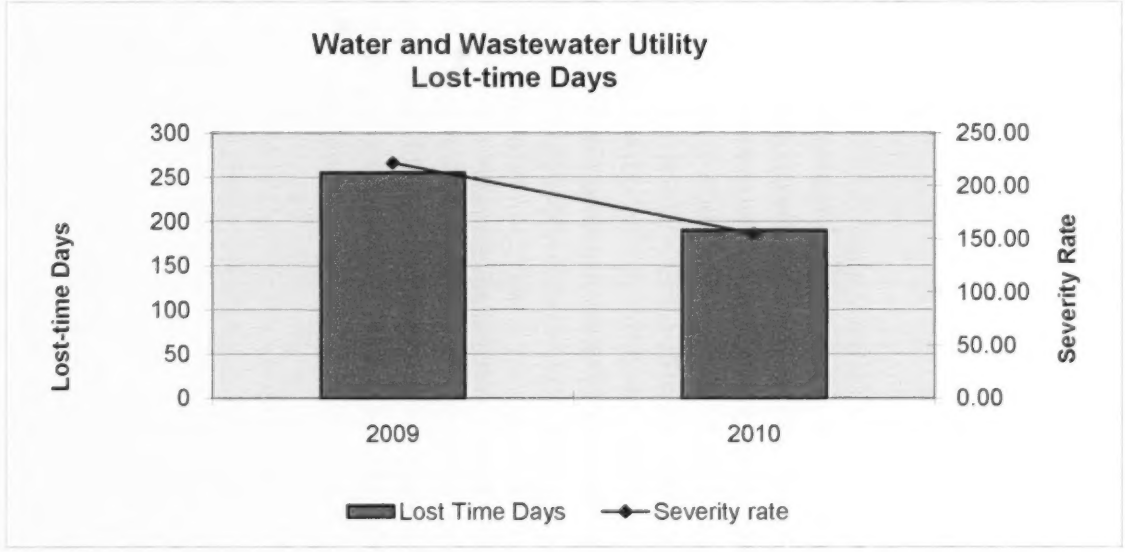
OUR PEOPLE

Employee Safety

The Water Utility employs 79.17 full time employees (FTEs) at the Water Treatment Plant and the Meter Shop; the Wastewater Utility has 58.00 FTEs. Utility management and staff have placed a strong emphasis on safety meetings, "tool box" meetings, work observations, and work planning. The Utility exceeded the number of safety meetings planned for the year and undertook 68 work observations.

In 2010, the Utility experienced 11 lost-time incidents for a total of 190 lost-time days. Both these measures are an improvement from 2009. As a result, both the lost time frequency rate (8.98) and severity rate (155.1) improved from 2009.





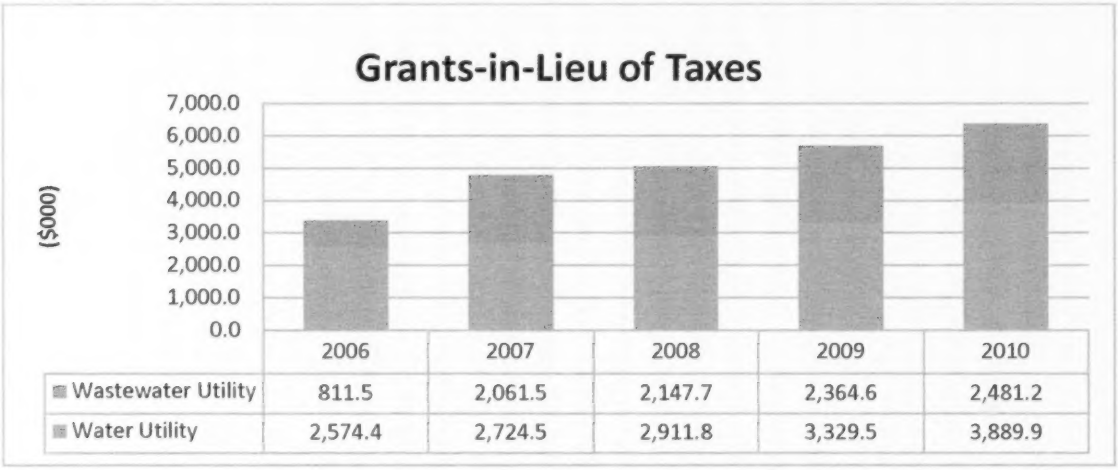
OUR FINANCES

Revenues Contributed to the City of Saskatoon

The Water and Wastewater Utility provides the City of Saskatoon with a grants-in-lieu of taxes. City policy states that the utilities will provide annual amounts based on 10% of budgeted metered revenue excluding revenue designated for transfer to the waterworks capital projects

reserve and wastewater treatment capital reserves. In past years, grants-in-lieu of taxes were based on 10% of actual metered revenue. City Council recently passed a recommendation from Administration to base the amount on 10% of budgeted metered revenue. In 2010, this meant the Water and Wastewater Utilities had to deal with approximately an additional $600,000 shortfall rather than passing this on to the mill-rate in the form of reduced grants-in-lieu of taxes.

In 2010, the Water and Wastewater Utilities transferred $6,371.1 thousand to the City; $3,889.9 thousand from the Water Utility and $2,481.2 thousand from the Wastewater Utility.



	2006	2007	2008	2009	2010
Wastewater Utility	811.5	2,061.5	2,147.7	2,364.6	2,481.2
Water Utility	2,574.4	2,724.5	2,911.8	3,329.5	3,889.9

Revenues

The Water and Wastewater Utilities are fully funded through their rates. Late in 2009, Council approved annual average water, wastewater, and infrastructure levy rate increases of 7.5% for each of the years 2010, 2011, and 2012 based on administrative recommendation.

The financials include water distribution and wastewater collection programs which are the responsibility of Infrastructure Services. The Infrastructure Services Department's operating costs cover the operation and maintenance of the water distribution system and wastewater collection system which includes emergency work to repair watermain and service connection breaks, sewer failures, and to clean and clear sewer main blockages.

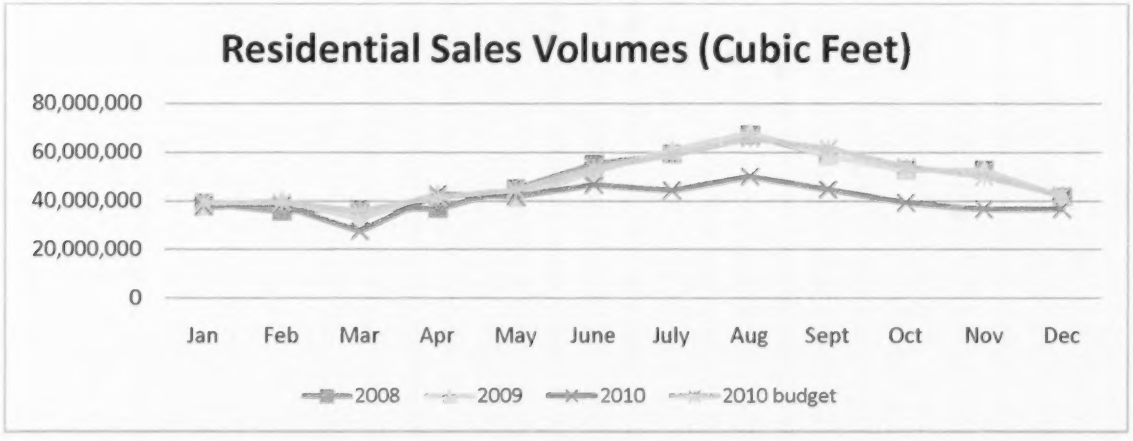
The infrastructure levy is used to fund water distribution and wastewater collection system capital rehabilitation and replacement projects needed to address an aging infrastructure, including elimination of the watermain replacement backlog to meet current service levels.

Due to the lower than forecasted water volumes, total water and wastewater revenue was $6,480 thousand less than budget. Operating costs were reduced by $4,880 thousand from the budget, which left a combined water and wastewater deficit of $1,600 thousand. Infrastructure Services returned a portion of the capital funding to the Stabilization Reserve to offset the deficit so that there would be no financial impact on the City of Saskatoon.

Water Utility

Total water revenue in 2010 was $40,990 thousand, which is $4,245 thousand (9.4%) less than budget.

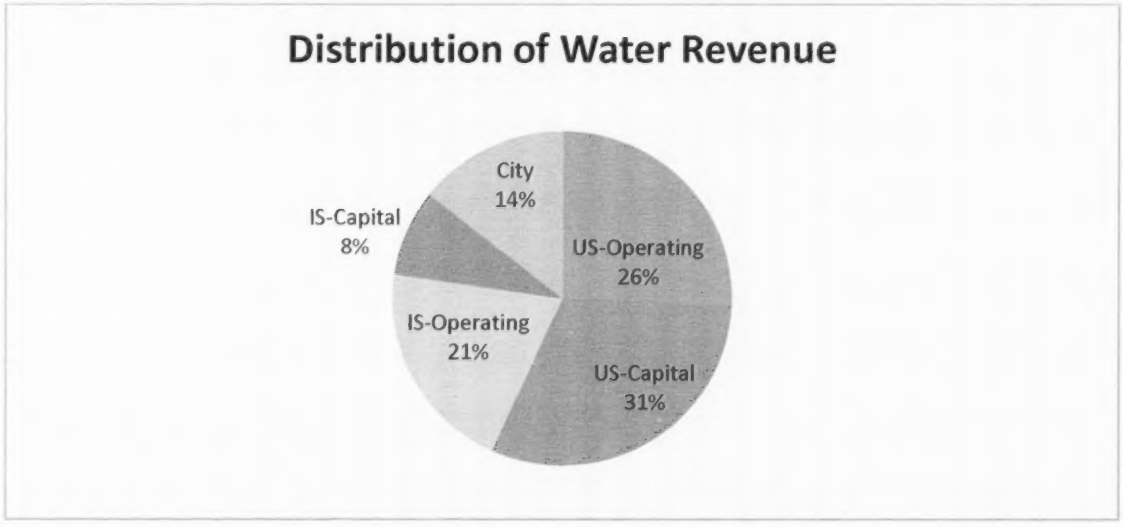
Metered revenue was $36,541 thousand, which is $3,844 thousand (9.5%) less than budget. The unfavourable revenue variance is due to the sales volume, which was 10.5% less than budget. Approximately, 71% of metered revenue is from volumetric charges and the remaining 29% from fixed charges. Revenue from the sale of water consists of sales to residential customers (49% of total) and commercial customers (51% of total). The following chart shows how the normal summer residential sales did not occur in 2010.



Infrastructure levy revenue is a volumetric charge that is transferred to Infrastructure Services capital reserve. This revenue is $425 thousand (10.7%) less than budget due to the lower than budget volumes.

Other revenue, which consists of the fire protection charge, late payment penalties and some miscellaneous revenue, was slightly more than budget.

The following chart shows how the Water Utility revenue is shared among Utility Services (US), Infrastructure Services (IS), and the City of Saskatoon. US water operating costs include treatment, pumping, storage, meter shop, administration, and general. US water capital costs include existing debt charges, debt reduction charges, down payments on capital projects, and provisions to its capital reserves. The City's share includes grants-in-lieu of taxes, cross charges for customer billing and collections, and corporate administration. IS operating is the operating costs for the distribution system. IS capital is the infrastructure levy revenue that is transferred to Infrastructure Services capital reserve to fund capital projects.



2010 Water Utility Operating Budget Variance ($000)

	Budget	Actual	Variance	%
Metered revenue	$40,385	$36,541	($3,844)	-9.52%
Infrastructure Levy	3,986	3,561	(425)	-10.66%
Other revenue	865	888	24	2.73%
Total revenue	$45,236	$40,990	($4,245)	-9.38%
Expenses:				
US-Treatment, Pumping Storage	$9,292	$8,212	($1,080)	-11.62%
US-Meters	1,232	1,057	(175)	-14.20%
US-Administration and general	1,993	1,640	(353)	-17.72%
US-Capital charges	14,617	13,278	(1,339)	-9.16%
City Hall Services	2,220	2,216	(5)	-0.21%
Grants-in-lieu of taxes	3,890	3,890	0	0.00%
IS-Distribution	8,006	8,724	718	8.97%
IS-Provision to Capital	3,986	3,561	(425)	-10.66%
Total expense	$45,236	$42,577	($2,658)	-5.88%
Revenue less expense	$0	($1,587)	($1,587)	
Return on Investment	$0	$0	$0	0.00%
(To)/From Stabilization reserve	0	$1,587		

Wastewater Utility

Total wastewater revenue in 2010 was $33,551 thousand, which is $2,235 thousand (6.2%) less than budget.

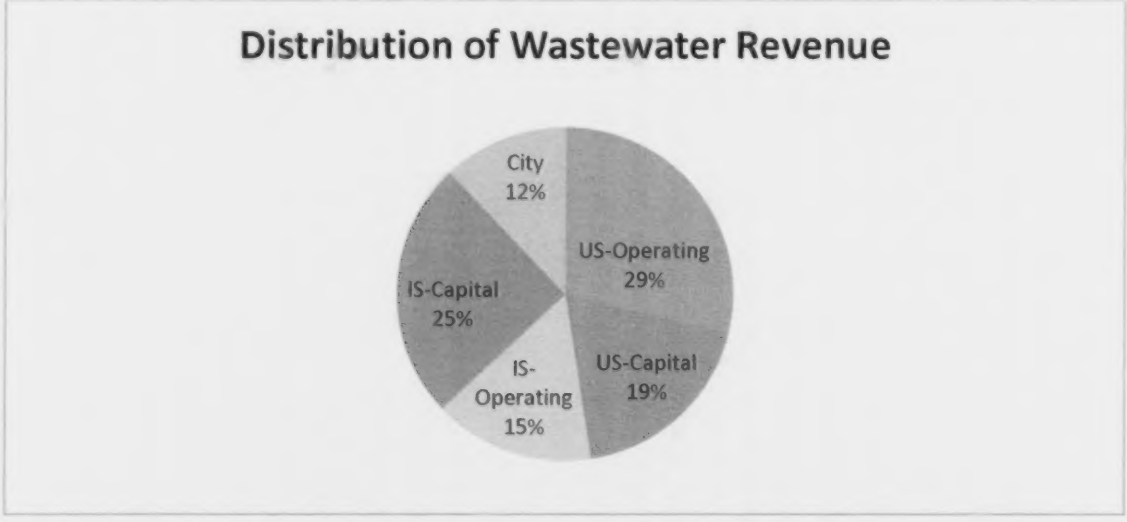
Metered revenue was $24,250 thousand, which is $2,047 thousand (7.8%) less than budget. Wastewater metered revenue is billed based on water volumes. The unfavourable revenue variance is due to the water sales volume, which was 10.5% less than budget. Approximately 58% of metered revenue is from volumetric charges and the remainder fixed charges. Metered revenue consists of sales to residential customers (48% of total) and commercial customers (52% of total).

Infrastructure levy revenue is a volumetric charge that is transferred to Infrastructure Services capital reserve. This revenue is $587 thousand (10.7%) less than budget due to the lower than budget volumes.

Other revenue, which consists of liquid waste hauler fees, late payment penalties, and some miscellaneous revenue, was $229 thousand (33.53%) more than budget.

Flood protection levy revenue is a fixed charge that is transferred to Infrastructure Services capital reserve. This revenue is $170 thousand (5.2%) more than budget due to higher than budget number of meters.

The following chart shows how the Wastewater Utility revenue is shared among Utility Services (US), Infrastructure Services (IS), and the City of Saskatoon. US wastewater operating costs include treatment, lift stations, sludge handling and disposal, administration and general. US wastewater capital costs include existing debt charges, debt reduction charges, down payments on capital projects, and provisions to its capital reserves. The City's share includes grants-in-lieu of taxes, cross charges for customer billing and collections, and corporate administration. IS operating is the operating costs for the sanitary sewer collection system. IS capital is the infrastructure levy revenue and flood protection levy that are transferred to Infrastructure Services capital reserve to fund capital projects.



2010 Wastewater Utility Operating Budget Variance ($000)

	Budget	Actual	Variance	%
Metered revenue	$26,297	$24,250	($2,047)	-7.78%
Infrastructure Levy	5,505	4,918	(587)	-10.66%
Other revenue	683	912	229	33.53%
Flood Protection Levy	3,300	3,470	170	5.15%
Total revenue	$35,785	$33,551	($2,235)	-6.24%
Expenses:				
US-Treatment	$6,609	$5,874	($735)	-11.12%
US-Lift Stations	1,038	1,096	59	5.66%
US-Sludge Handling and disposal	2,093	1,993	(101)	-4.81%
US-Administration and general	912	730	(182)	-20.00%
US-Capital charges	6,593	6,251	(342)	-5.19%
City Hall Services	1,554	1,552	(2)	-0.11%
Grants-in-lieu of taxes	2,481	2,481	0	0.00%
IS-Collection	5,701	5,199	(502)	-8.81%
IS-Provision to Capital	8,805	8,388	(417)	-4.73%
Total expense	$35,785	$33,564	($2,222)	-6.21%
Revenue less expense	($0)	($13)	($13)	
Return on Investment	($0)	($0)	$0	0.00%
(To)/From Stabilization reserve	0	$13		

Key Performance Indicators

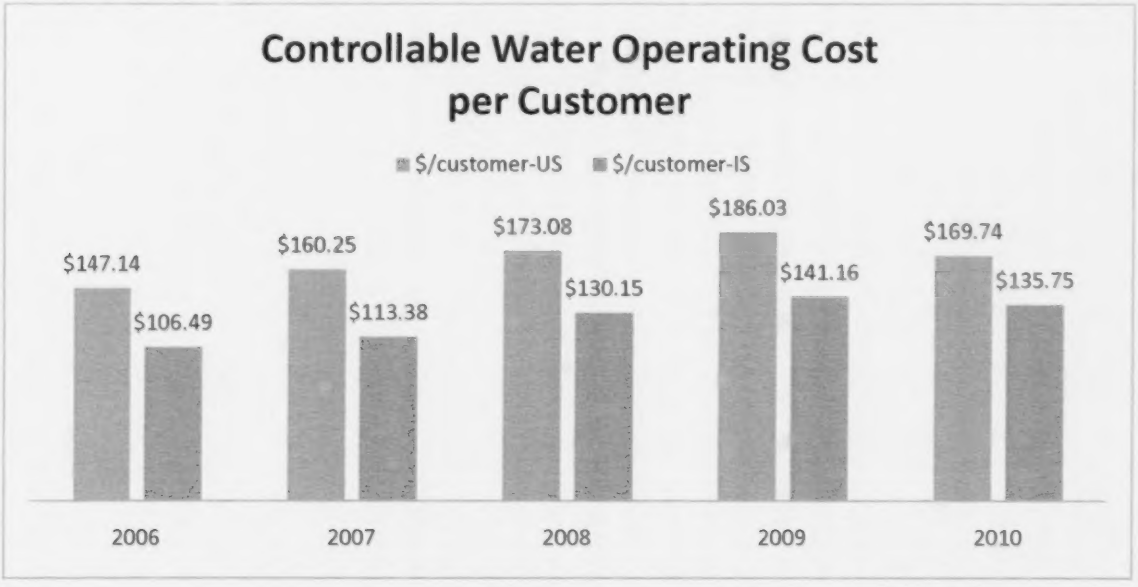
"The Utility is accountable and responsible to prudently spend utility dollars."

Unmetered water is determined as the difference between treated water pumped from the Water Treatment Plant and the amount metered at customer premises. Some of this difference is due to water loss through leaks or water theft, authorized but unmetered consumption, and estimated consumption and year end unbilled volumes. Over the past five years, this difference has ranged from 15 to 17% of pumpage volumes. For a given level of sales consumption, any improvement in water loss would result in lower water volume treated and lower water treatment operating costs. Reduction of water loss will require maintenance and investment in the water distribution system.

Municipal governments are under pressure to relate their spending to the cost of inflation measured by the Consumer Price Index (CPI). However, the CPI measures the price change of

common household purchases (food, shelter, clothing household operations and furnishings), and municipal purchases differ. Several Canadian cities have been developing a Municipal Price Index (MPI) to measure inflation. In 2010, MPI ranged from 3 to 5%, and research conducted by the City of Calgary shows the MPI exceeding the CPI.

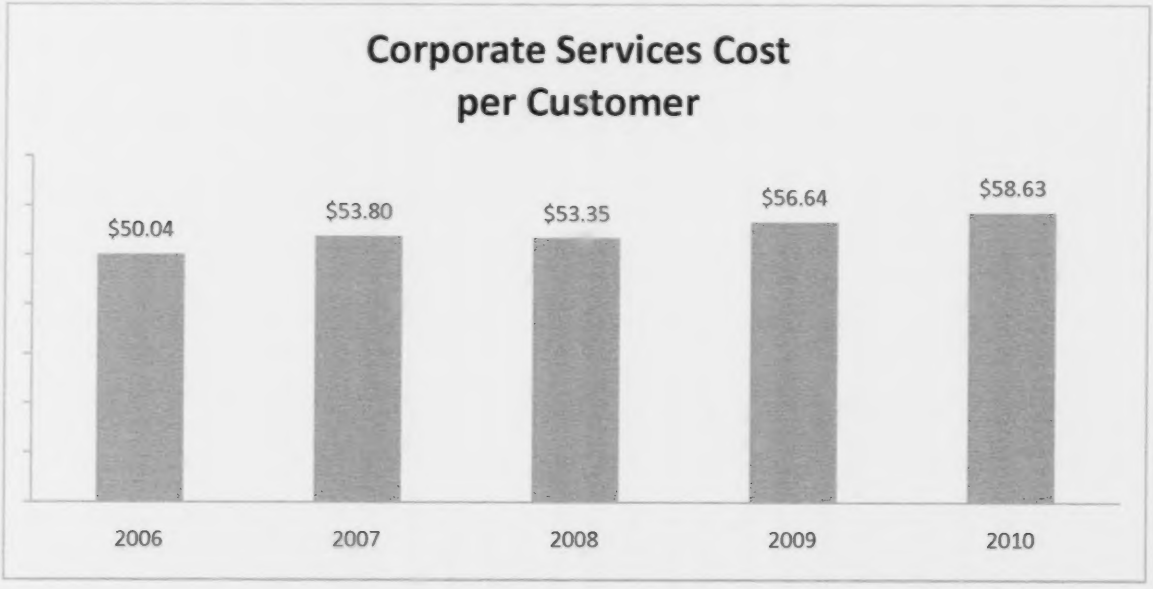
US water controllable operating costs include treatment, pumping, storage, meter shop, administration, and general. Controllable operating costs exclude the cost of Corporate Services, debt servicing costs, and provisions to capital reserves. Infrastructure Services controllable operating costs include the operating costs for the distribution system. Faced with a large unfavourable revenue variance, management was able to reduce controllable water costs per customer from 2009, due in part to lower chemical and electricity costs resulting from reduced volume treated and pumped. The average increase in this metric over the five-year period was 3.6 and 6.2% per year respectively for Utility Services and Infrastructure Services. These rates of increase are reasonable in relation to the MPI.



US wastewater controllable operating costs include treatment, lift stations, sludge handling and disposal, administration, and general. Infrastructure Services wastewater controllable operating costs include the operating costs for the wastewater collection system. The average increase in this metric

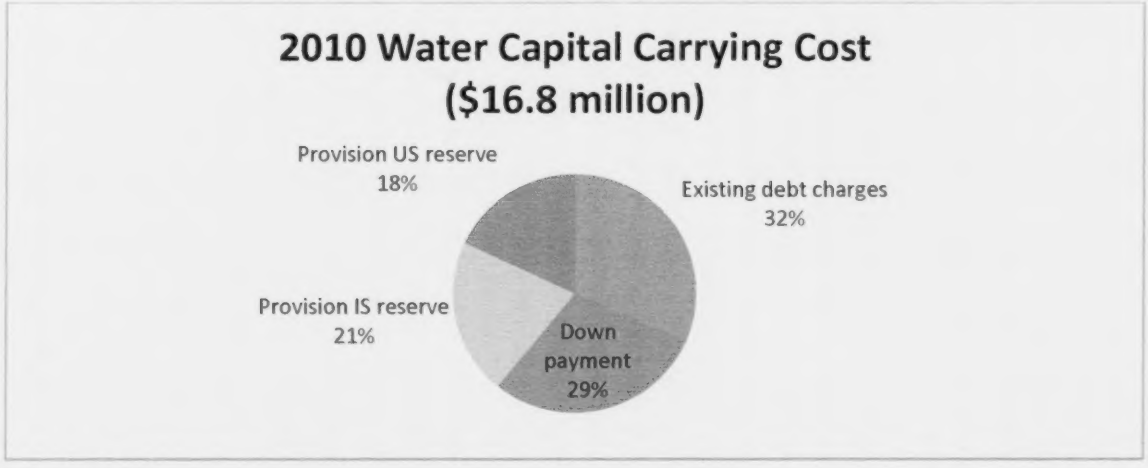
over the five-year period was 4.7 and 4.0% per year respectively for Utility Services and Infrastructure Services. These rates of increase compare favourably to the MPI.

Corporate Services costs include customer billing and collections, administrative overhead, and computer services charges. The following chart shows the combined Corporate Services costs for water and wastewater. These costs per customer increased at a rate of 4.1% per year from $50.04 in 2006 to $58.63 in 2010. This rate of increase is reasonable in relation to the MPI.

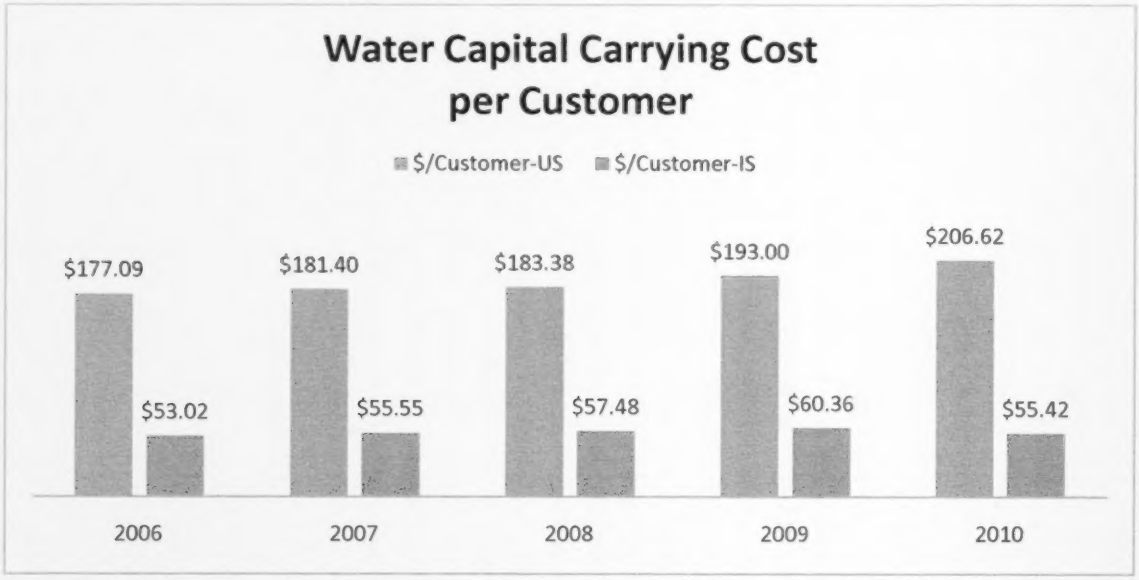


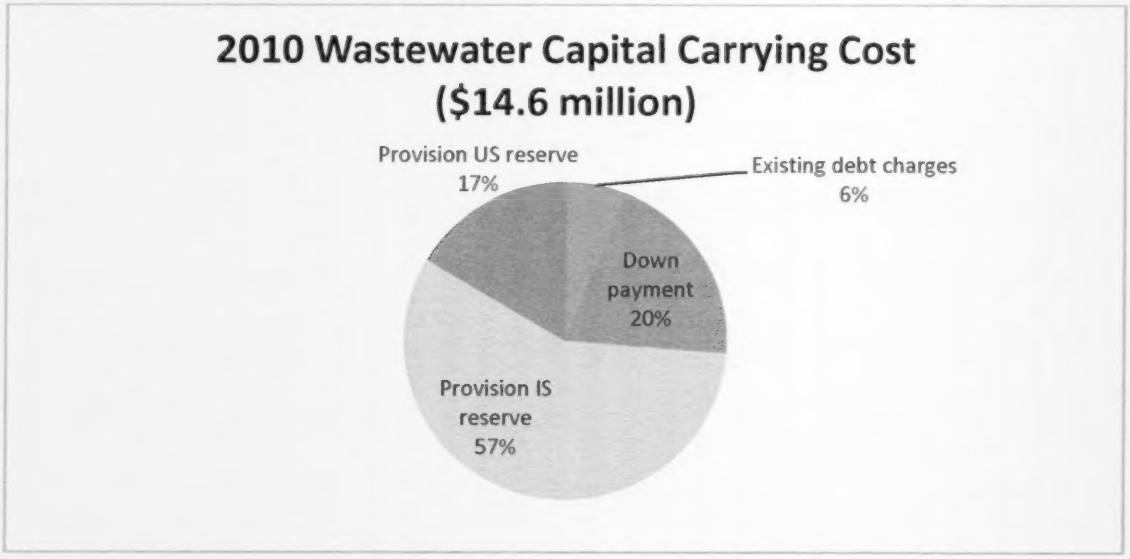
The Utility's capital expenditures are funded from capital reserves and debt. Provisions to capital reserves and debt servicing costs are all funded from utility rates and termed capital carrying cost.

The following charts show the composition of annual capital carrying costs funded from revenue. Down payment includes approximately 10% of newly approved debt and earlier approved but still unissued debt. Provision to the Infrastructure (IS) capital reserve for water is funded by the infrastructure levy and for wastewater the infrastructure levy and flood protection levy.

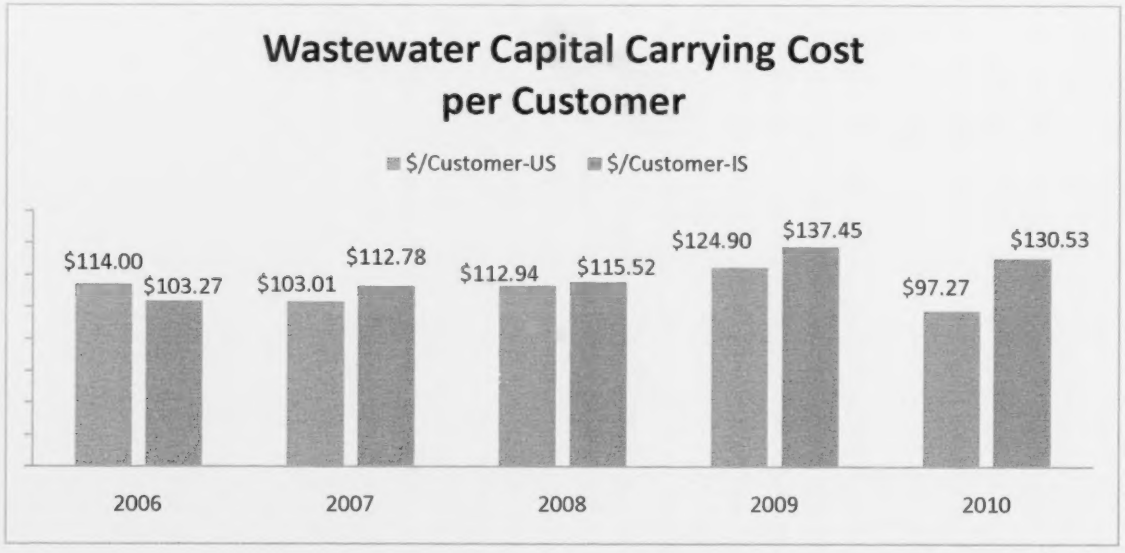


Water Capital Carrying costs per customer has increased at a rate of 3.9% per year for Utility Services from $177.09 in 2006 to $206.62 in 2010. This ratio has increased at a rate of 1.1% per year for Infrastructure Services from $53.02 in 2006 to $55.42 in 2010. Both rates of increase compare favourably with the MPI.

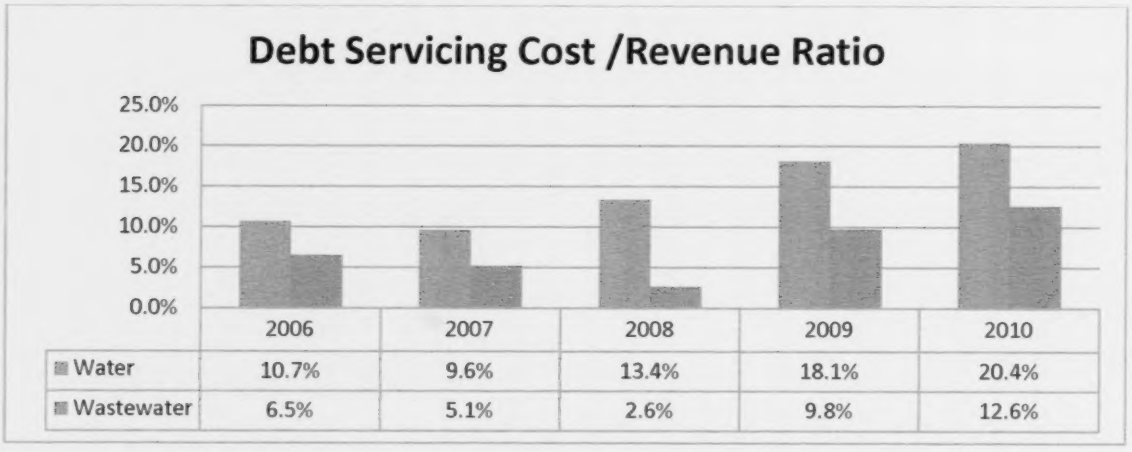



2010 Wastewater Capital Carrying Cost ($14.6 million)
Provision US reserve 17%
Existing debt charges 6%
Down payment 20%
Provision IS reserve 57%

Wastewater Capital Carrying costs per customer has decreased at a rate of 4% per year for Utility Services from $114.00 in 2006 to $97.27 in 2010. This ratio has increased at a rate of 6% per year for Infrastructure Services from $103.27 in 2006 to $130.53 in 2010.



The ratio of debt servicing cost to revenue for Utility Services water and wastewater is shown in the following chart. Debt servicing cost includes existing debt principal and interest, debt reduction charges, and revenue excludes the infrastructure and flood protection levies. This ratio indicates that the level of debt relative to revenue is manageable for the Utility.



	2006	2007	2008	2009	2010
Water	10.7%	9.6%	13.4%	18.1%	20.4%
Wastewater	6.5%	5.1%	2.6%	9.8%	12.6%

OUR WORK

Since the North Battleford (Saskatchewan) and Walkerton (Ontario) water quality incidents, the provincial government Permit to Operate has required more stringent monitoring and reporting. Water chemists, technologists, and treatment plant operators conduct over 50,000 water treatment quality tests and a further 5,000 distribution water quality tests every year as part of the water quality control program. Saskatoon consistently meets or exceeds all regulatory limits for drinking water quality.

The public expects responsible watershed management and stewardship. The Utility is a member of South Saskatchewan Watershed Stewards Incorporated, a community based non-profit corporation that was formed to implement the South Saskatchewan River Watershed Source Water Protection Plan. Protecting the river and its surrounding watershed is vital to the long-term sustainability of our water supply.

A Consumer Confidence Report is distributed each year by the end of May, and can be found on the City's website. The quality of final wastewater effluent produced in 2010 exceeded all of the Saskatchewan Ministry of Environment Permit to Operate limits. Phosphorous is the key nutrient the Wastewater Treatment Plant removes because of its very negative impacts on the Saskatchewan River. In 2010, phosphorous concentration in final treated effluent was the lowest ever. The implementation of the ultraviolet disinfection facility to replace chlorine disinfection at the Wastewater Treatment Plant has improved the quality of the final effluent being discharged to the South Saskatchewan River.

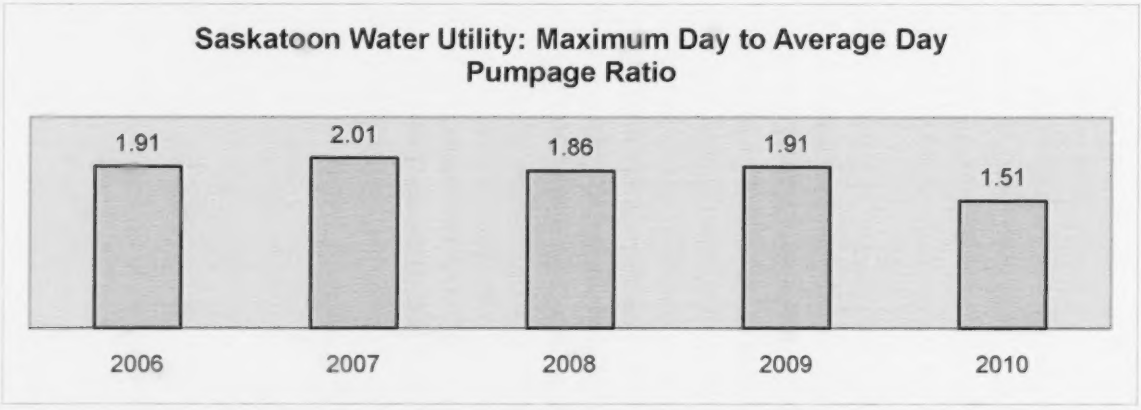
Guided tours of both the Water Treatment and Wastewater Treatment Plants are available to the public.

The Utility supports the Provincial Operator Certification Program, for both the Water and Wastewater Treatment Plants, which helps protect both the public and the environment.

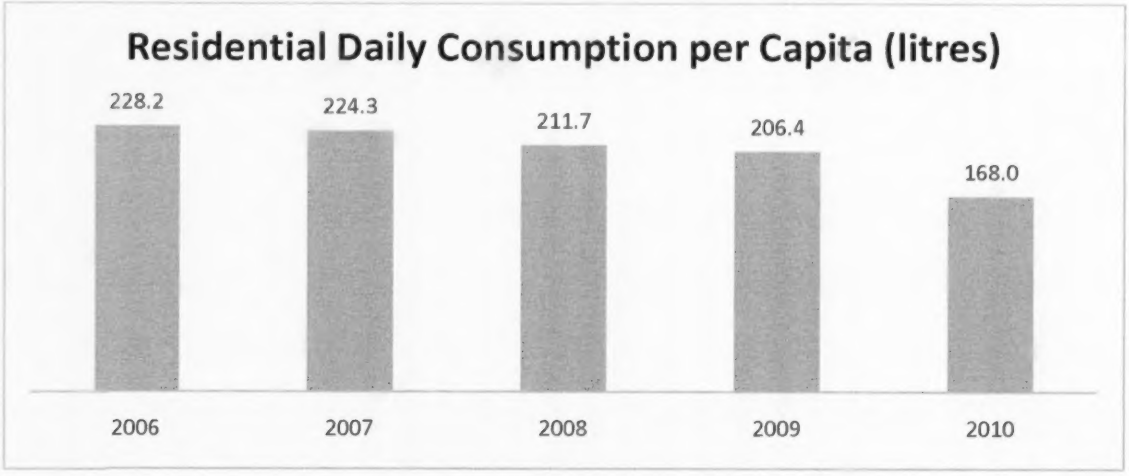
Conservation

In 2009, the Water and Wastewater Treatment Branch engaged a consultant to develop a long-term capital development and expansion plan. The plan recommended the development of a water conservation plan to defer the need for a new water treatment plant, and other capital expenditures.

The 2010-2012 rate plan implemented new conservation-oriented rates. In addition, customer education to attenuate the summer maximum day volume (peak demand management) will also defer some capital expenditures. In 2010, the maximum day pumpage was very low because of the virtual elimination of summer irrigation. As a result, the ratio of maximum day to average day fell to 1.51. As conservation rates and customer education begin to impact customer behaviour, this ratio should fall from the 1.9 level, but it is not anticipated to reach as low as the 2010 level.



The following chart provides a measure of residential consumption on a per day per capita basis. There has been a slight decline over the past five years that might be at least partially attributed to new, more efficient showers, washing machines, and toilets. In 2010, this metric is lower than usual because of the wet summer. By comparison, the most recent National Benchmarking initiative showed a median Canadian value for 2008 of 237 litres daily consumption per capita.



Capital Projects in Progress

Aerial view of construction of new intake facility upstream of the Queen Elizabeth Power Station.

At year end, the Water Utility had 30 active projects with total approved budgets of $107 million. Significant budgets include: new water intake facility ($45 million); sludge recovery disposal ($16 million); and Avenue H Reservoir expansion ($15 million).

At year end, the Wastewater Utility had 37 active projects with total approved budgets of $51 million. Significant budgets include: grit and screen facility ($17 million); ultraviolet disinfection system ($13 million); and primary digestion process upgrade ($5 million).

IN CONCLUSION

Through its approved 2010 Operating Budget and the approved Five Year Capital Plan including the 2010 Capital Budget, the Utility was able to maintain operations and fund capital projects related to water and treated wastewater quality, city growth, and regulatory matters.

The success of the Utility is dependent on the dedication and skills of its employees and their efforts are greatly appreciated. Our competent team of plant operators, tradespersons, maintenance staff, engineers, technologists, chemists, and administrators all play an important role. The guidance and support of the General Manager of the Utility Services Department, the City Manager, and City Council is appreciated.

The Utility and its staff look forward to the challenges and the opportunities that the future will provide.